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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,803	06/15/2000	Mamoru Hirayama	032590-063	9412

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EXAMINER

KANG, JULIANA K

ART UNIT PAPER NUMBER

2874

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/593,803	HIRAYAMA ET AL.	
	Examiner	Art Unit	
	Juliana K. Kang	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/12/02 and 10/21/02 (RCE & amendments).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 15 and 27 is/are allowed.
- 6) ☒ Claim(s) 12 and 19-25 is/are rejected.
- 7) ☐ Claim(s) 2, 3, 5-11, 13, 14, 16-18 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

1. The request filed on September 12, 2002 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/593,803 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, the recited limitation "at least a portion which guides said optical fiber to the lead end thereof is formed with a radius of curvature larger than the radius of curvature causing breakage of said optical fiber," in lines 3-6 makes the claim vague and unclear. It appears that the limitation of claim 12 is shown in Fig. 9 (as a second embodiment) and described in pages 45 and 46 of the specification. Claim 1 recites the limitation of the wheel-less wiring head which is shown in Figs. 5a and 5b (as a first embodiment) and described in pages 31 and 32. It is not clear to the Examiner whether claim 12 is redundant of claim 1 or applicant intends to add an additional limitation.

Appropriate correction is required.

Claim Objections

4. Claims 2, 3, 5, 6, 9-14, 16, 17, and 22-26 are objected to because of the following informalities:

Claim 3 recites the limitation "a lead end of said wiring head." Since "a lead end" is already recited in claim 1, it should be corrected to read --said lead end of said wiring head--.

Claim 9 recites the limitation "an optical fiber" in line 6. Since "an optical fiber" is already recited in claim 1, it should be corrected to read -- said optical fiber--.

Claim 10 recites the limitation "a lead end" in line 3. Since "a lead end" is already recited in claim 1, it should be corrected to read -- said lead end--.

Claim 16 recites the limitation "an optical fiber path" in line 4. Since the limitation "an optical fiber path" is already recited in claim 1 line 6, it should be corrected to read -- said optical fiber path--.

Claim 22 recites the limitation "an the optical fiber" in line 3. Since "an optical fiber" is already cited in line 3, it should be corrected to read either --said optical fiber-- or --the optical fiber--.

Claim 24 recites the limitation "an optical fiber" in line 4. It should be corrected to read --said optical fiber-- because it is already recited in line 1. Also the recited limitation "top" should be corrected to read "bottom." It appears that all the pressure grooves are formed in the bottom of the wheel-less wiring head according to the specification and the drawings. Furthermore, the recited limitation "spherical surface" in lines 3 and 5 should be corrected to read either "hemispherical shape" (as stated in

page 31 of the specification and as shown in Figs. 5a-6f, and 9), or "curved surface," to make the claim clearer. Please note that "spherical shape" generally means globe or ball shape. For the examining purpose, the recited limitation will be interpreted as curved surface. However, if applicant does not agree with the Examiner, please indicate where the claimed invention is discussed in the specification.

Claims 2, 3, 5, 6, 9-14, 17, 23, 24 and 25 recite the limitations "wiring head." The wiring head is referred as "wheel-less wiring head" in their preceding claims. Although it is understood by the Examiner that the recited wiring head in above claims are referred to the wheel-less wiring head, it would make the claims clearer to read since applicant has amended "wiring head" to "wheel-less wiring head" in the independent claims to overcome the prior art in the previous amendment submitted by applicant. Thus, it is requested to correct all the "wiring head" to "wheel-less wiring head" in order to be consistent and to avoid the confusion.

Claim 26 recites the limitation "a deeper portion." "Deeper" is relative to extent of being definite only in regard to particular object compared to. According to the specification page 31 last two lines, the guiding groove becomes deeper upwardly. Including the limitation "upwardly" in the claim would make the claim clearer. Appropriate corrections are required.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (U.S. Patent 5,365,657).

Regarding claims 19 and 21, Brown et al teach a wiring apparatus for wiring a substrate (12) comprising: a manipulator (10, shown in Fig. 1), a wire feed means (40), a wheel-less wiring mechanism (38) which includes a wire pressing means (see column 10 lines 3-10), a Z-axial rotation mechanism (see column 7 line 49), a wiring cutting means (16) and a pressure groove (Fig. 10d shows the tip of the wheel-less wiring head with a groove by dotted lines). Even if it is not a groove, it would have been obvious to one with ordinary skill in the art to place a groove in Brown et al's wheel-less wiring head to hold the conductor in place so that the conductor does not slip out from the wiring head. Thus, Brown et al teach all the claimed limitations except the conductor (wire) being an optical fiber. Although Brown et al do not mention an optical fiber, Brown et al's conductors used in a printed circuit board for wiring have very small diameters in the range of 2.5-4 mm (see column 2 line 3), which is also the range of an optical fiber diameter. Thus, it would have been obvious to one with ordinary skill in the art to easily recognize Brown et al's invention for wiring an optical fiber, which also has very small diameter, as an equivalent technique to lay very small wires on a printed wiring board. Please note that the limitation "said pressure groove formed with a radius of curvature larger than the radius of curvature at which said optical fiber breaks" is an intended use and thus, the patentable weight is not given.

Regarding claim 20, Brown et al show a plunger (56) which extends to the wheel-less wiring head (38) and presses the optical fiber against the substrate (see column 9

line 66-column 10 line 12), and Brown et al further state that a Z-axis actuator raises and lowers the wiring head (which includes the plunger) along with a cutter blade (16) (see column 7 lines 49-53).

Regarding claims 22 and 23, as described above, Brown et al teach claimed limitation including XY movement of the wiring substrate and wiring head (see column 6 lines 36-39).

Regarding claim 24 and 25, as described above, all the claimed limitations are taught by Brown et al including the curved wheel-less wiring head surface (please refer to the objection above regarding the claim language, spherical surface). Furthermore, Brown et al's wiring head can move in X, Y, and Z directions and Brown et al teach that the typical scribing machine's wiring head may rotate about the Z-axis during turns in a conductor's path (see column 1 lines 23-25). Thus, Brown et al's apparatus would inherently orient the wiring head in a direction at tangent to the wiring pattern when a wiring pattern to be wired is in a curved pattern.

Please note, regarding the rejections above, the method claims do not introduce any particular manufacturing methods, so it is proper to examine the article and method claims together.

Allowable Subject Matter

7. Claims 1,15 and 27 are allowed.

Regarding claim 1, the closet prior art of record, Brown et al, do not teach or reasonably suggest all the claimed specific elements and specific combinations including a wheel-less wiring head with a guide groove which extends partially along a

length of the wiring head forming an optical fiber path as shown in Figs. 5a and 5b and as recited in claim 1. Although Brown et al show a groove formed on the wheel-less wiring head, Brown et al's groove is formed diagonally and across. Brown et al do not teach or show the groove formed along (in a line parallel with, definition by Merriam Webster's Collegiate Dictionary) a length of the wheel-less wiring head.

8. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 2, 3 and 5-11, 13, 14, 16-18 and 26 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

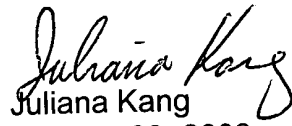
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Káng whose telephone number is (703) 305-6259. The examiner can normally be reached on Mondays and Thursday 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-3072.

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Juliana Kang
January 23, 2003